I. Overview of Education Technology Planning

Technology can be a powerful tool in improving teaching and learning as well as in school management. However, technology is only a tool, and one must plan its use if it is to promote improved student achievement within the context of the current system of standards, assessment, and accountability. A plan to integrate technology into the curriculum should have the following five essential components:

1. **Curriculum**
2. **Professional Development**
3. **Infrastructure, Hardware, Technical Support, and Software**
4. **Funding and Budget**
5. **Monitoring and Evaluation**

These five components cover the same areas as the five federal E-Rate Program planning questions that must be addressed to qualify for infrastructure and Internet service provider discounts.

The Curriculum component is at the heart of the technology plan. It outlines how technology will be used to enhance the teaching and learning process. Decisions made in the Curriculum component affect the decisions in the rest of the components. The Professional Development component establishes the methods and schedules for training teachers, administrators, classified staff, parents, and community members, where applicable, to support the Curriculum component of the plan. The Infrastructure, Hardware, Technical Support, and Software component outlines the type of technology and the time frame for when these various technology resources will be obtained in order to accomplish the Curriculum and Professional Development components. Next, the Funding and Budget component establishes the cost estimates and funding sources needed to accomplish the first three components of the plan. Finally, the Monitoring and Evaluation component provides the means by which the school district will determine whether the plan is effective. This last component also includes a decision-making process that provides for revision of the plan where needed.

> *What is technology?*
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> *Technology is the tools and machines that are employed to perform tasks efficiently. For schools, teachers, and students, technology is the tools and machines that save time in student recordkeeping, present course material more dramatically or clearly, and provide more individualized instruction and time on task. It is video streaming from a NASA Web site that shows a star being born or a database that compiles assessments of student performance so that teachers can tailor their instruction more efficiently to the needs of the student. Technology includes, but is not limited to, computers and software, interactive white boards, networked thin clients, television sets, videos, microscopic cameras, computer-based laboratories, digital cameras, personal digital assistant (PDAs), calculators, and whatever else will be invented.*

A. Why Plan?

1. The law requires a plan for future funding.

Education Code Section 51871.5, enacted by Assembly Bill 598, (Chapter 830, Statutes of 1999), requires school districts to have a three- to five-year technology plan as a condition of receiving any technology grant administered by the California Department of Education after January 1, 2002.

2. An all-inclusive planning team can create positive change.

Planning together results in a sense of ownership and teamwork that can focus the energies of all constituent groups toward the objective: the effective use of technology to support improved student achievement.

All stakeholders should be included by having the planning team consist of representatives from business, community-based organizations, and institutions of higher education; district administrators in the fields of curriculum and technology; site administrators (elementary, middle, high school, and alternative schools); library media and classroom teachers; classified staff; parents; and students. Section B, "Who Should Develop the Plan," contains more information on the composition of the planning team.

> For the purposes of this guide, **teachers** include elementary, middle, high, and alternative school teachers; library media teachers; special education teachers; resources teachers; counselors; and others responsible for the instruction of students.

3. **A comprehensive up-to-date technology plan is an application waiting for a funding program.**

   School districts already develop technology plans to apply for individual programs. This new law requires the plan to be comprehensive and encompass more than one funding source. Thus, the resulting plan could be used to apply for a variety of state, federal, or private and nonprofit grants. This comprehensive plan should allow school districts to respond to public and private and nonprofit funding opportunities more expeditiously and provide for more coordinated program management once the funds are received.

4. **Proper planning saves time and money.**

   Local technology planning helps school districts use technology resources effectively by identifying both current and future needs. Because of the limited funding available to education for technology, one objective of planning is to minimize the purchase of technology that will quickly be outdated. With technology changing so rapidly, planning for current and future uses may pose a challenge. However, the requirement to develop a three- to five-year plan should help districts to think strategically about how limited technology dollars can be used to meet curricular demands over the next several years.

5. **Successful results can be achieved faster with a comprehensive plan.**

   Comprehensive long-range planning provides the details to accomplish desired change. Planning increases awareness of particular needs that, in turn, raise awareness of possible solutions. Schools have reported accomplishing their five-year plan in three years primarily because they knew what they wanted and could take advantage of opportunities as they came along.

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B. Who Should Develop the Plan?

1. Include all the stakeholders in the planning team.

Selecting the planning team that will research and write the plan is important. It is important to have not only the people knowledgeable about technology on the planning team but also the people who will implement the plan so that they understand and share ownership of the plan. The persons selected should represent all the constituent groups that will be involved in implementing the plan, including district administrators in curriculum and technology, site administrators, teachers, library media teachers, classified staff, parents, students, community members, and business representatives. Novice and experienced technology users should also be included to ensure that the completed plan meets their needs.

2. Include representatives from the school district and the school.

School district planning typically involves some information gathering (technology inventories) and decision making (delivery of curriculum) at the school site rather than at the district level. A two-tier planning process in which some planning decisions are made at each individual site rather than at the school district level may result in the most workable plan. At the very least, it encourages the inclusion of both district-level staff and site-level staff on the planning team. Remember, successful implementation is more likely if the school sites understand the plan through participation in the planning process.

3. Obtain the support of the school superintendent and the governing board.

The support of the school superintendent and the governing board is so vital to the successful implementation of the plan that both entities should be represented on the planning team. One way to obtain their support is to have the planning team itself appointed by the governing board. The planning team should receive a budget and a schedule for reporting to the board. Depending on the size and expertise of the planning team, the budget may need to include funds for additional support that

may be obtained through a contract. Some of the planning tasks, such as needs assessments and network design, may be completed in this fashion.

4. Choose the size and structure of the planning team that best meets your district's needs.

The size and structure of the team are interrelated and will vary depending on the time and expertise that are available to the district and the number of constituent groups that need to be included. Small teams may find it easiest to work together on every aspect of the plan. If a large team is appointed, it may be most practical to break into working groups with an agreed-upon method of regular communication to share information between the groups. Another model is to appoint a large committee representing all the constituent groups to review and respond to the analysis and recommendations of smaller working groups.

> Help from the **community, parents, and students** is vital if a plan is going to succeed. Including the community, parents, and students in every aspect of the planning process will enrich the entire process.

5. Involve the community, businesses, parents, and students in all aspects of the plan and implementation.

The participation of the community, parents, business and nonprofit organizations (especially those concerned with workforce skills), institutions of higher education, and students is vital if a plan is going to succeed. For this reason parent and community involvement is embedded in each of the five components. These partners have a commitment to the betterment of the community, and many have expertise or financial resources that may assist schools in meeting their technology goals.

6. Establish a common base of knowledge among team members.

The planning team may include individuals who do not typically work with one another. It is important for each team member to have a working knowledge of the other team members'

areas of expertise so they all have a common base of information. The jargon of each group will have to be explained so that group members can communicate. For example, technology support staff may need an explanation of content standards while teachers on the team may need an overview of routers, hubs, and switches. Thus, the district's first step in technology planning may be this "cross-pollination" of experts on the staff.

C. How Should the Plan Be Developed?

This guide is intended to present all the issues that need to be addressed to utilize technology as a part of a comprehensive school improvement plan.

The guide describes the five components of the technology plan, suggested action steps and guiding questions, and a toolkit for creating a technology plan that will help students of all ages meet their learning needs, expand their learning opportunities, and enrich their learning experiences. If your school district considers and addresses, where applicable, the issues raised in this guide, your district will have created a plan that can be used not only to obtain E-rate and other sources of technology funding but also to guide the school district's use of technology to improve teaching and learning.

Each school district should develop the technology plan in a manner that best suits its planning resources and decision-making structure. Each school district's planning process will be different due to the current circumstances of the district and prior planning efforts. Even the starting point will vary among districts. The following path is presented to expedite your district's efforts.

1. First Steps

A. Coordinate all components of your plan.

Each of the five components of an education technology plan is so dependent on the next that close communication between the persons working on each component is vital. Additionally, because all components arise from and support the Curriculum

component, consider developing that component first and obtaining stakeholder agreement on it prior to proceeding with the rest of the planning.

B. *Review all the existing plans and basic information.*

The planning process will be enhanced by gathering all the existing plans and necessary information before the first meeting of the planning team. Consider compiling a library of the following documents to assist the planning team:

- Any existing district and/or site technology plans, E-rate plans, Digital High School plans, Action Plans for Education Technology Staff Development for Grades 4–8 (Assembly Bill 1339)

- Any comprehensive improvement plans developed under the Immediate Interventions/Underperforming Schools Program, the School-Based Coordinated Program, five-year local improvement plans, or Western Association of Schools and Colleges (WASC) reviews

- District budgets, existing technology inventories, technology standards, master purchasing contracts, and any related plans, such as 1882 Staff Development Plans, and 1274 Plans
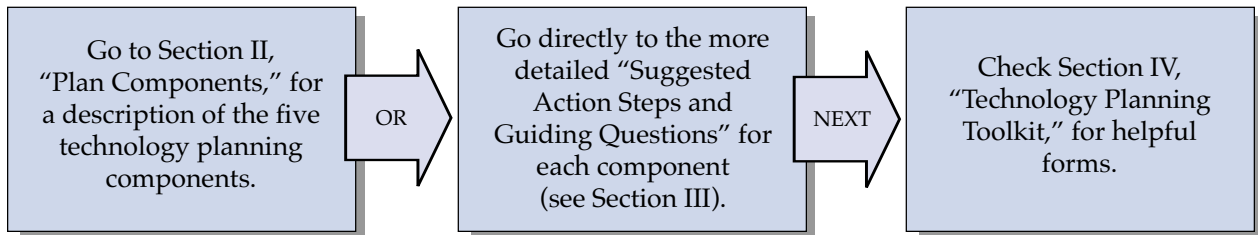
C. *Contact the California Technology Assistance Project and read the pertinent parts of this guide.*

The California Technology Assistance Project (CTAP) staff is available to assist your district in technology planning. Not only do staff members have experience in planning, but they also know about business and community partnerships in the area, best practices, and cost-saving measures that may assist in planning and implementation. To identify the CTAP staff serving your school district, please visit the California Department of Education Web site *<www.cde.ca.gov/edtech/>*. Information regarding regional contacts may be found by clicking on the California Technology Assistance Project (CTAP) under "Programs."
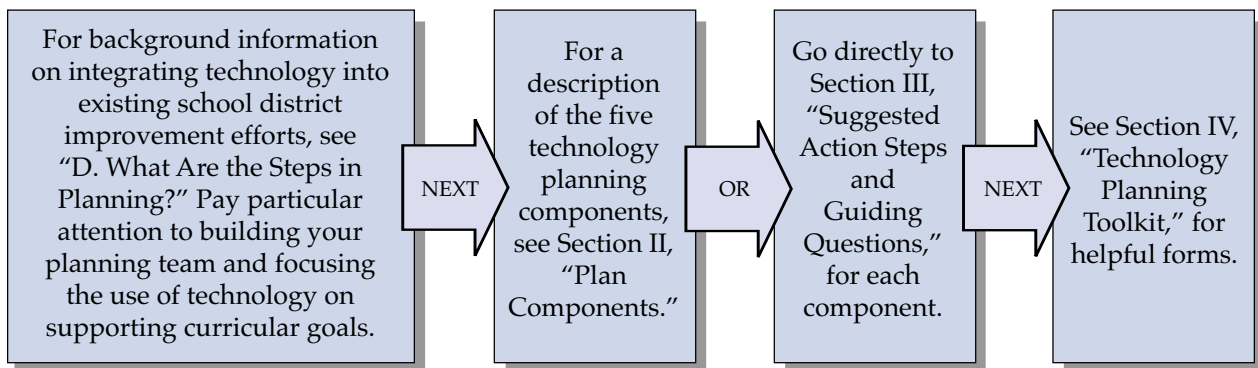
2. Quick Start

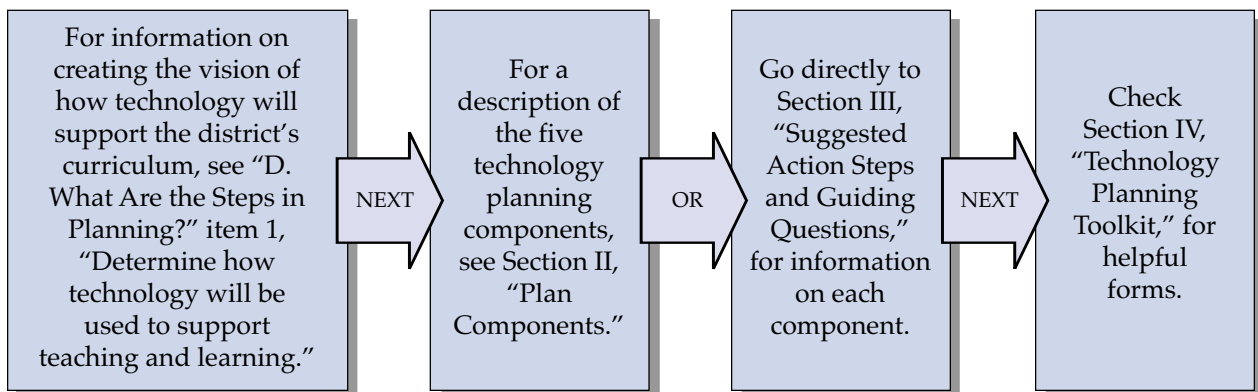Choose the statement that best describes your school district and follow the arrows.

Our district technology plan needs to be updated.

| Go to Section II, "Plan Components," for a description of the five technology planning components. | OR → | Go directly to the more detailed "Suggested Action Steps and Guiding Questions" for each component (see Section III). | NEXT → | Check Section IV, "Technology Planning Toolkit," for helpful forms. |

Our district has no technology plan, and the district technology coordinator has been given the responsibility of developing one.

| For background information on integrating technology into existing school district improvement efforts, see "D. What Are the Steps in Planning?" Pay particular attention to building your planning team and focusing the use of technology on supporting curricular goals. | NEXT → | For a description of the five technology planning components, see Section II, "Plan Components." | OR → | Go directly to Section III, "Suggested Action Steps and Guiding Questions," for each component. | NEXT → | See Section IV, "Technology Planning Toolkit," for helpful forms. |

Our district is developing or updating the school district comprehensive improvement plan and wants to include the use of technology to improve student achievement.

| For information on creating the vision of how technology will support the district's curriculum, see "D. What Are the Steps in Planning?" item 1, "Determine how technology will be used to support teaching and learning." | NEXT → | For a description of the five technology planning components, see Section II, "Plan Components." | OR → | Go directly to Section III, "Suggested Action Steps and Guiding Questions," for information on each component. | NEXT → | Check Section IV, "Technology Planning Toolkit," for helpful forms. |

Section IV, "Technology Planning Toolkit," includes a checklist of essential components for a technology plan. Review the checklist often to organize your activities, obtain the necessary information and participation, and eventually arrive at a comprehensive technology plan that may be submitted to a governing board.

> *Technology allows learning to take place all the time. The Lemon Grove Elementary School District in San Diego County has worked with the local community, including the cable company, to deliver no- or low-cost high-speed Internet connectivity between the school district and students' homes. By using cable modem technology and an inexpensive network appliance, students and parents are able to reach their school work and the resources of the Internet at any hour of the day any day of the week. The school district has a powerful tool to use to communicate with parents, encouraging more parent involvement in their students' education as well as providing some adult education by training parents to use the Internet.*

D. What Are the Steps in Planning?

An education technology plan should cover five components: Curriculum; Professional Development; Infrastructure, Hardware, Technical Support, and Software; Funding and Budget; and Monitoring and Evaluation. Each component is important for a complete plan. The components are currently required in all plans to qualify for federal E-rate discounts.

A brief discussion of the planning steps follows. More details of each component are described in Section II. In Section III each component is accompanied by a set of action steps and guiding questions to assist the planning team in its deliberations.

1. **Determine how technology will be used to support teaching and learning.**

   All educators have the goal of improving student achievement and preparing students for life and the workplace. An education technology plan outlines how technology can assist in achieving this goal.

   The first step for the planning team is to examine current district efforts in meeting the academic content standards and the vision statements included in the school district and/or individual site comprehensive school improvement plans. The planning team should next examine the many uses of technology and develop a vision of how technology can support the school district's ongoing efforts and long-range goal of helping students meet the academic content standards.

2. **Determine the starting point—how technology is currently used.**

   The steps taken depend not only on the objective but also on the current use of technology and available resources. There are various tools for and methods of assessing the current status of the district's infrastructure, hardware, software, technical support, and staff competencies. Specific methods or resources to assess specific needs are covered under the individual plan components in the next section.

> The California Technology Assistance Project (CTAP) has staff and resources available to help the school district and the planning team develop and implement the school district education technology plan. To contact the CTAP staff that provides regional technology services to your district, please visit the California Department of Education Web site *<www.cde.ca.gov/ls/et/>*.

Ideas for enriching the standards-based curriculum through technology are as follows:

- Practice of communication skills, perhaps even in a foreign language, with pen pals through e-mail

- Video conferencing with experts in their field

- Virtual field trips to NASA, the Smithsonian, the Louvre, the Getty, and so forth

- Distance learning for classes that have low enrollments and cannot be offered economically by the school

- Professional development on demand (any time and anywhere)

- Individualized instruction with detailed monitoring of students' progress to assist teachers in developing individualized learning plans for students in specific subjects

- Activities designed to permit teamwork, allowing students to engage in joint projects with their classmates and with students from other states and regions around the world

- Hands-on practice, more time, more content, and more problem-solving

- Communication between school and home (multilingual school/class web pages, e-mail, instant messaging, and/or voice mail)

- Student and parental access at home to learning resources in multiple languages

- Learning resources and assistive technologies with features (e.g., large font size, closed caption video, voice recognition) that accommodate students with special needs

- Internet research opportunities and information literacy skills development

- Library learning resources accessible electronically throughout the school

- Community access to school technology resources to increase adult literacy

- Electronic grade books, digital chalkboards, DVD (digital videodisc) technology, digital photography, video, and CD-ROM read/write drives

- Electronic attendance accounting and other student recordkeeping tasks

- Instructional videos in a variety of languages

3. Outline the steps to move the district from the present to the future.

Section II, "Plan Components," and Section III, "Suggested Action Steps and Guiding Questions," provide detailed help in developing and implementing the components of an education technology plan. Generally, implementation requires well-thought-out timelines that coordinate all the individual steps and benchmarks in each component. For example, a particular lesson plan included in the Curriculum component cannot be presented unless the requisite equipment has been purchased and installed and the necessary training has been conducted.

4. Reflect and revise.

Planning is an ongoing process and should include set times to review progress and revise the plan. Because technology changes rapidly, an annual review process is recommended. Consider scheduling the progress reviews to coincide with the district's budget process to ensure funding decisions are made with the latest information.

Technology holds immense promise for education. Technology helps people learn, be creative, and become players and communicators in a global village. Technology, tied to the Internet, allows students of all ages to engage in knowledge building on a worldwide stage as never before possible. Many students in high poverty or isolated schools will never have opportunities to learn except through the use of technology. —U.S. Department of Education, *Technology Connections for School Improvement: Planners' Handbook.*